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A Review on Gestational Diabetes Mellitus during Pregnancy

Anushree Kumari*, Charanjeet Singh

Department of Pharmacology, Jaipur College of Pharmacy, Jaipur, Rajasthan, India.

ABSTRACT

Approximately 3 to 5 percent of all pregnant women in the United States are diagnosed as having gestational diabetes. These women and their families have many questions about this disorder. Diabetes (actual name is diabetes mellitus) of any kind is a disorder that prevents the body from using food properly. Your blood always has some sugar in it because the body needs sugar for energy to keep you going. But too much sugar in the blood is not good for your health.

Keywords: Gestational diabetes mellitus, Type I diabetes, macrosomia

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***Address for Correspondence:**

Anushree Kumari, Department of Pharmacology, Jaipur College of Pharmacy, Jaipur, Rajasthan, India.

1. INTRODUCTION:

The way our bodies use digested food for growth and energy. Most of the food we eat is broken down by the digestive juices into a simple sugar called glucose. Glucose is the main source of fuel for the body. When we eat, the pancreas is supposed to automatically produce the right amount of insulin to move the glucose from our blood into our cells. If your body doesn't make enough insulin or the insulin doesn't work right, the sugar cannot get into the cells.[1] It stays in the blood. This makes your blood sugar level high, causing you to have diabetes. As a result, glucose builds up in the blood, overflows into the urine, and passes out of the body. Thus, the body loses its main source of fuel even though the blood contains large amounts of glucose.

Gestational diabetes -unlike women with Type I diabetes, those with gestational diabetes have plenty of insulin. In fact, they usually have more insulin in their blood than women who are not pregnant. However, the effect of their insulin is partially blocked by a variety of other hormones made in the placenta, a condition often called insulin resistance.

2. GESTATIONAL DIABETES DIFFER FROM OTHER TYPES OF DIABETES:

Gestational diabetes begins during pregnancy and disappears following delivery. Type I diabetes occurs when the pancreas of a child or young adult produces little or no insulin and usually develops their before age 20. People with Type I diabetes must take insulin by injection every day[2]. Approximately 10 percent of all people with diabetes have Type I (also called insulin–dependent diabetes).

Type II diabetes (formerly called adultonset diabetes or noninsulindependent diabetes) is also characterized by high blood sugar levels, but these patients are often obese and usually lack the classic symptoms (fatigue, thirst, frequent urination, and sudden weight loss) associated with Type I diabetes. Type 2 diabetes usually first occurs in persons over 40 years of age. Many of these individuals can control their blood sugar levels by following a careful diet and exercise program, by losing excess weight, or by taking oral medication.[3] Some, but not all, need insulin. People with Type II diabetes account for roughly 90 percent of all diabetics.

3. GESTATIONAL DIABETES AFFECT PREGNANCY:

The complications of gestational diabetes are manageable and preventable. The key to prevention is careful control of blood sugar levels just as soon as the diagnosis of gestational diabetes is made. You should be reassured that there are certain things gestational diabetes does not usually cause. Unlike Type I diabetes, gestational diabetes generally does not cause birth defects.[4,5,6]

4. MACROSOMIA:

One of the major problems a woman with gestational diabetes faces is a condition the baby may develop called "macrosomia." Macrosomia means "large body" and refers to

a baby that is considerably larger than normal.[7] All of the nutrients the fetus receives come directly from the mother's blood

5. DIAGNOSIS:

Risk assessment for GDM should be undertaken at the first prenatal visit. Women with clinical characteristics consistent with a high risk of GDM (marked obesity, personal history of GDM, glycosuria, or a strong family history of diabetes) should undergo glucose testing (see below) as soon as feasible. If they are found not to have GDM at that initial screening, they should be retested between 24 and 28 weeks of gestation. Women of average risk should have testing undertaken at 24–28 weeks of gestation.[8] Low-risk status requires no glucose testing, but this category is limited to those women meeting all of the following characteristics:[9-13]

- Age <25 years
- Weight normal before pregnancy
- Member of an ethnic group with a low prevalence of GDM
- No known diabetes in first-degree relatives
- No history of abnormal glucose tolerance
- No history of poor obstetric outcome

6. MANAGMENT/TREATMENT:

Gestational Diabetes Mellitus is defined as carbohydrate intolerance of variable severity with onset or first recognition during the present pregnancy. An alternative explanation is that Gestational Diabetes is Type 2 Diabetes unmasked or discovered during pregnancy.[9] Risk Factors :

a) Positive family history of Diabetes

b) Having a previous birth of an overweight baby of 4 kg or more

c) Previous stillbirth

d) Unexplained perinatal loss

e) Presence of polyhydramnios (excessive amniotic fluid) or recurrent vaginal infection in present pregnancy

f) Persistent glycosuria

g) Age over 30 years.

The method employed is by using 50 gm oral glucose challenge test without regard to time of day or last meal , between 24 – 28 weeks of pregnancy . A plasma glucose value of 140 mg percent or that of whole blood of 130 mg percent at 1 hour is considered as cut off point for consideration of a 100 gm (WHO – 75 gm) glucose tolerance test.

7. OVERT DIABETES:

A patient with symptoms of Diabetes Mellitus (increased urination , increased thirst , weight loss) and random plasma glucose concentration of 200 mg / dl or more is considered overt diabetic . The condition may be pre existing or detected for the first time during present pregnancy.[10] According to American Diabetic Association , diagnosis is positive if a) The fasting plasma glucose exceeds 126 mg / dl b) The 2 hour post glucose (75 gm) value exceeds 200 mg / dl Patients with poor glycemic control and vascular disease are at increased risk of complication of IUD , IUGR , Pre eclampsia and Ketoacidosis.

In Ayurveda Madhumeha disease can be correlated with Diabetes Mellitus . Though there is no direct reference of Gestational Diabetes but Garbha Vriddhi is described as a complication. Garbha Vriddhi : In Garbha Vriddhi , there is excessive increase in size of abdomen and perspiration . Labour is difficult. This can be understood as Overweight fetus or Macrosomia.[11]

8. MANAGEMENT:

Ayurveda helps in limiting the maternal and fetal complications. Herbs are helpful as a supportive treatment along with the modern medicine under supervision. Generally beneficial, congenial, purifying and suppressive dietetics and mode of life, not causing loss of doshas and dhatus but capable of decreasing the increased doshas and dhatus should be used.[12] Garbhadhan Vidhi : Pre conception counseling is a must. Diet : Following can be included in the diet (in moderation) : Vegetables : Bitter gourd, fenugreek leaves, tomatoes, bell pepper, spinach, cucumber, radish, sponge gourd, drumstick leaves & fruits, broccoli, kale, lettuce, cauliflower, cabbage . Pulses : Mainly beans – green gram, bengal gram, black eyed pea, garbanzo beans, chick pea . Spices : Turmeric, cinnamon, garlic, fenugreek seeds. Cereals : Wheat, barley, pearl millet, oats . Fruits : Plums, kiwi, lime, oranges, guava, java plum / black plum, apple, peaches, gooseberry. Dry Fruits : Almond, apricot, walnut.

9. HOMOEOPATHIC TREATMENT:

The primary diagnostic criterion for DM is elevation of blood glucose levels during fasting or at 2 hours following a meal. Normal plasma glucose values for adults in the fasting state are 80 – 120 milligrams per decilitre [mg/dl]. Definition of unequivocal DM requires a fasting blood sugar level greater than 126 mg/dl or a 2-hour post ingestion plasma glucose level equal to or greater than 200 mg/dl for the appearance of classical symptoms of Diabetes. These symptoms, which include excessive urination, urine containing sugar, hunger, thirst, fatigue and weight loss, are common to all types of DM.[13]

Despite the use of a plethora of different terms in the past, diabetes is now generally classified as type I DM [insulin dependent diabetes mellitus] and type II DM [noninsulin dependent diabetes]. Other variants of DM include maturity-onset diabetes of youth, tropical diabetes, which shows characteristics of both insulin dependence and non-dependence, and gestational diabetes, which occurs during the latter part of pregnancy.[14-18] Approximately 90-95% of all diabetics may be classified as type II, and about 5% as type I. Some 2% of diabetics have DM as a secondary result of other disease or injury.

9. YOGA:

Diabetes mellitus yoga cure - natural treatment alternative home medicine 3.8 out of 5 based on 4 votes. Natural cure and preventing diabetes mellitus through holistic alternative complementary medicine like yoga aurveda reiki eft and other home remedies. Gestational diabetes Diabetes may lead to gangrene, damage of retina, kidneys. If diabetes is not properly controlled then in the long run fat gets deposited on inner layer of arteries and the possibilities of occurrence of paralysis increase. Complications of diabetes include eye problems and blindness, heart disease, stroke, neurological problems, amputation, and impotence.[18]

10. W.H.O. REPORT GESTATIONAL DIABETES:

32 million people are living with diabetes in India, and more than 16 percent of pregnant Indian women have gestational diabetes. And the prevalence percentage of gestational

diabetes mellitus (GDM) is increasing rapidly. According to a study published in the Journal of the Association of Physicians of India, an overall prevalence of GDM in their study area is about 17% in Chennai, 15% in Trivandrum, 21% in Alwaye, 12% in Bangalore, 18.8% in Erode and 17.5% in Ludhiana. The study also indicated that Indian women have high prevalence of diabetes and their relative risk of developing GDM is 11.3 times compared to white women. Further, Asian women are ethnically more prone to develop glucose intolerance compared to other ethnic groups. It has also been seen that pregnant women in the age group of 30 to 39 years had greater prevalence of GDM as compared with those in the age group of 20 to 29 years. Considering all these facts, the researchers suggest screening all pregnant women for glucose intolerance. According to the study by WHO, between 1995 and 2025, the number of people with Diabetes in India is projected to rise from 19 to 57 million, i.e., an increase of 95% indicating global burden of diabetes.[19-22] By 2025, in developing countries 76% of all persons will be suffering diabetes as compared with 62% in 1995. Worldwide, 122% rise is projected from the total of 135 to 300 million. That is more than 2 fold global increase will occur because of population gain and growth as well as from obesity, unhealthy diets and sedentary lifestyle. These later factors are closely associated with urbanization and industrialization.[23] The top three countries with Diabetes in prevalence rate by 2025 will be India [57 million], followed by China [38 million] and USA [22 million]. In India there are presently 4 crore diabetics. The rising prevalence of diabetes in our country, both among the urban and rural population, has established the fact that majority of Indians are vulnerable to this fatal disease.[24]

11. SUMMARY AND CONCLUSION:

Develops during pregnancy and is usually diagnosed at 24 to 28 weeks of gestation on the basis of elevated plasma glucose levels on glucose tolerance testing. Goal of therapy is to achieve maternal glucose levels that are high normal or lower in order to avoid fetal macrosomia and complications. Initial therapy for gestational diabetes is usually dietary modification. Insulin is started when acceptable glucose levels cannot be maintained with diet alone. Maternal postnatal testing for diabetes or impaired glucose metabolism is performed at least 6 weeks following delivery. The long-term risk for recurrence or type 2 diabetes is high.

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